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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/612,022	07/03/2003	Tatsuhiko Obayashi	012777-052	5836

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EXAMINER

FEELY, MICHAEL J

ART UNIT	PAPER NUMBER
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1712

DATE MAILED: 03/24/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/612,022	OBAYASHI ET AL.	
	Examiner	Art Unit	
	Michael J. Feely	1712	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 03 July 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-20 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-20 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 03 July 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☒ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date <u>1003</u> . | 6) <input type="checkbox"/> Other: _____ |

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DETAILED ACTION

Priority

1. Acknowledgment is made of applicant's claim for foreign priority based on an application filed in Japan on July 5, 2002, July 19, 2002, and November 1, 2002. It is noted, however, that applicant has not filed a certified copy of the Japanese applications as required by 35 U.S.C. 119(b).

Claim Rejections - 35 USC § 102

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

(e) the invention was described in a patent granted on an application for patent by another filed in the United States before the invention thereof by the applicant for patent, or on an international application by another who has fulfilled the requirements of paragraphs (1), (2), and (4) of section 371(c) of this title before the invention thereof by the applicant for patent.

The changes made to 35 U.S.C. 102(e) by the American Inventors Protection Act of 1999 (AIPA) and the Intellectual Property and High Technology Technical Amendments Act of 2002 do not apply when the reference is a U.S. patent resulting directly or indirectly from an international application filed before November 29, 2000. Therefore, the prior art date of the reference is determined under 35 U.S.C. 102(e) prior to the amendment by the AIPA (pre-AIPA 35 U.S.C. 102(e)).

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3. Claims 1-3 and 6-17 are rejected under 35 U.S.C. 102(b) as being anticipated by Tsukada et al. (US Pat. No. 6,129,980).

Regarding claims 1-3 and 6-17, Tsukada et al. disclose: *(1)* an anti-reflection film that is an optical film (Abstract; column 19, lines 25-58), comprising at least, a hard coat layer (Abstract; column 21, line 23 through column 22, line 30), and a low-refractive index layer containing a binder polymer (Abstract; column 2, lines 23-36), on a transparent support (Abstract; column 19, lines 26-35), wherein said hard coat layer and/or said low-refractive index layer contains:

(a) a hydrolysate of an organosilane in which a hydroxyl group or a hydrolysable group is directly bonded to silicon, and/or a partial condensation product thereof (column 2, lines 60-65; column 21, lines 54-64); and

(b) at least one metal chelate compound of an alcohol represented by formula R^3OH , in which R^3 represents an alkyl group having 1 to 10 carbon atoms, and a compound represented by formula $R^4COCH_2COR^5$, in which R^4 represents an alkyl group having 1 to 10 carbon atoms, and R^5 represents an alkyl group having 1 to 10 carbon atoms or an alkoxy group having 1 to 10 carbon atoms, as ligands, and a metal selected from the group consisting of Zr, Ti and Al, as a central metal (column 14, line 48 through column 15, line 42; column 22, lines 5-30);

(2) wherein said hard coat layer contains an inorganic filler composed of an oxide of at least one element selected from the group consisting of zirconium, titanium, aluminum, indium, zinc, tin, antimony and silicon (column 21, lines 41-53 and 65-67);

(3) wherein said low-refractive-index layer contains an inorganic filler selected from silica and magnesium fluoride (column 16, line 55);

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(6) wherein said binder polymer in the low-refractive-index layer is a fluorine-containing polymer (column 4, line 42 through column 7, line 30);

(7) wherein said organosilane of (a) the hydrolysate of an organosilane, in which a hydroxyl group or a hydrolysable group is directly bonded to silicon, and/or the partial condensation product thereof, is an organosilane represented by formula (A):



in which R^{10} represents a substituted or unsubstituted alkyl or aryl group X represents a hydroxyl group or a hydrolysable group, $m1$ represents an integer of 0 to 3; and $n1$ represents an integer of 1 to 4, in which the total of $m1$ and $n1$ is 4 (column 2, line 60 through column 3, line 56; column 21, lines 54-64); (8) wherein the R^{10} of said organosilane in formula (A) is a group containing an epoxy group or a (meth)acryloyl group (column 2, line 60 through column 3, line 56; column 21, lines 54-64);

(9) wherein said binder polymer in the low-refractive-index layer is a fluorine-containing polymer that is a perfluoroolefin copolymer (column 4, line 42 through column 10, line 10);

(10) wherein said binder polymer in the low-refractive-index layer is a fluorine-containing polymer that has a recurring unit containing a radical polymerizing group or a cation ring-opening polymerizing group at a side chain of said fluorine-containing polymer (column 4, line 42 through column 10, line 10);

(11) a method of producing an anti-reflection film according to claim 1, comprising: at least, coating a hard coat layer and a low-refractive-index layer containing a binder polymer, on a transparent substrate (column 19, lines 25-57), wherein a coating solution of said hard coat layer and/or a coating solution of said low-refractive-index layer comprises: the hydrolysate of

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said organosilane and/or the partial condensation product thereof (column 2, lines 60-65; column 21, lines 54-64); the metal compound represented by (b) (column 14, line 48 through column 15, line 42; column 22, lines 5-30); and (c) a beta-diketone compound and/or a beta-ketoester compound represented by formula $R^4COCH_2COR^5$, in which R^4 and R^5 each have the same meanings as those in (b) (column 16, lines 5-33);

(13) a polarizing plate, comprising a polarizing layer and two sheets of protective films of the polarizing layer, wherein at least one of said protective films comprises the anti-reflection film produced by the method according to claim 11 (column 22, lines 51-67); (17) a display device, having the polarizing plate according to claim 13, wherein the low-refractive layer is arranged on the viewer side (column 22, lines 51-67);

(15) a display device, having the polarizing plate according to claim 11, wherein the low-refractive layer is arranged on the viewer side (column 22, lines 51-67);

(12) a polarizing plate, comprising a polarizing layer and two sheets of protective films of the polarizing layer, wherein at least one of said protective films comprises the anti-reflection film produced by the method according to claim 1 (column 22, lines 51-67); (16) a display device, having the polarizing plate according to claim 12, wherein the low-refractive layer is arranged on the viewer side (column 22, lines 51-67); and

(14) a display device, having the polarizing plate according to claim 1, wherein the low-refractive-layer is arranged on the viewer side (column 22, lines 51-67).

Claim Rejections - 35 USC § 102/103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. Claims 4 and 5 are rejected under 35 U.S.C. 102(b) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over Tsukada et al. (US Pat. No. 6,129,980).

Regarding claims 4 and 5, Tsukada et al. do not explicitly disclose: (4) wherein at the surface on said low-refractive-index layer side, a coefficient of dynamic friction is in the range of 0.03 to 0.15, and a contact angle to water is in the range of 90 to 120°; and (5) wherein a surface energy of said hard coat layer is in the range of 25 mN-m⁻¹ to 70 mN-m⁻¹.

However, it appears that these properties would have been inherent in the low-refractive-index layer and hard coat layers of Tsukada et al. because Tsukada et al. use the same materials as those set forth in the instant invention. Furthermore, it has been found that, "Products of identical chemical composition can not have mutually exclusive properties." A chemical composition and its properties are inseparable. Therefore, if the prior art teaches the identical chemical structure, the properties applicant discloses and/or claims are necessarily present. *In re Spada*, 911 F.2d 705, 709, 15 USPQ2d 1655, 1658 (Fed. Cir. 1990).

Therefore, if not explicitly disclosed in Tsukada et al., the limitations of claims 4 and 5 would have been inherently present in Tsukada et al. because they use the same materials as those set forth in the instant invention.

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6. Claims 18-19 are rejected under 35 U.S.C. 102(e) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over You et al. (US Pat. No. 6,852,367).

Regarding claims 18-20, You et al. disclose: **(18)** a hardening composition (Abstract), comprising: a hydrolysate of an organosilane represented by formula (1), which is produced in the presence of an acid catalyst, and/or a partial condensation product thereof:



wherein, in formula (1), R^{10} represents a substituted or unsubstituted alkyl group, or a substituted or unsubstituted aryl group; X represents a hydroxyl group or a hydrolysable group; and m represents an integer of 1 to 3 (column 2, lines 50-54; column 4, lines 9-64), *wherein the composition features a consistent molecular weight (column 9, line 60 through column 10, line 10) of a component having a molecular weight of 500 to 20,000 (column 6, lines 18-38); and*

(19) a hardened film, which is obtained by hardening a hardening composition according to claim 18 (column 13, lines 9-25; column 1, lines 11-18).

You et al. do not explicitly disclose **(18)** *wherein a component having a molecular weight of 1,000 to 20,000 accounts for 80% by mass or more of components having a molecular weight of 300 or more among the hydrolysate of said organosilane and/or partial condensation product thereof*; however, it appears that their consistent molecular weight material having a number average molecular weight of about 500 to about 20,000 would have inherently satisfied this limitation. This is further supported by the use of an organic acid catalyst having a pKa of about 1 to about 4 – *this is used in the instant invention (see claim 20)*.

You et al. also fail to explicitly disclose **(19)** that the hardened film has a ^{29}Si -NMR analysis in the range of 0.5 to 3.5. However, it appears that this property would have been

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inherent in the film of You et al. because You et al. use the same materials as those set forth in the instant invention. Furthermore, it has been found that, "Products of identical chemical composition can not have mutually exclusive properties." A chemical composition and its properties are inseparable. Therefore, if the prior art teaches the identical chemical structure, the properties applicant discloses and/or claims are necessarily present. *In re Spada*, 911 F.2d 705, 709, 15 USPQ2d 1655, 1658 (Fed. Cir. 1990).

Therefore, if not explicitly disclosed in You et al., the limitations of claims 18 and 19 would have been inherently present in You et al. because they use the same materials as those set forth in the instant invention.

Claim Rejections - 35 USC § 103

7. Claim 20 is rejected under 35 U.S.C. 103(a) as being unpatentable over Tsukada et al. (US Pat. No. 6,129,980) in view of You et al. (US Pat. No. 6,852,367).

The teachings of Tsukada et al. and You et al. are as set forth above and incorporated herein.

Regarding claim 20, Tsukada et al. disclose (20) an anti-reflection film (Abstract; column 19, lines 25-58), comprising at least, a hard coat layer (Abstract; column 21, line 23 through column 22, line 30), and a low-refractive index layer (Abstract; column 2, lines 23-36), on a transparent support (Abstract; column 19, lines 26-35).

However, they do not disclose *wherein said hard coat layer and/or said low-refractive-index layer comprises the hardened film according to claim 19, wherein said acid catalyst is an organic acid having 4.5 or less of an acid dissociation constant, pKa value at 25°C, in water, and wherein the hydrolysate of said organosilane and/or partial condensation product thereof,*

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which is produced by using an alcohol with substantially not addition of water as solvent, is employed.

You et al. disclose a stable B-staged organosilicon composition useful for the formation of hard mask layers and anti-reflective coatings (Abstract; column 1, lines 11-18) – *see also rejection of claims 18 and 19 above*. In the composition of You et al., said acid catalyst is an organic acid having 4.5 or less of an acid dissociation constant, pKa value at 25°C, in water (column 2, lines 50-54; column 7, lines 38-64), and wherein the hydrolysate of said organosilane and/or partial condensation product thereof, which is produced by using an alcohol with substantially not addition of water as solvent, is employed (column 8, lines 22-28; column 9, lines 48-55).

The teachings of You et al. demonstrate that their stable composition would have been recognized in the art as a suitable material for the hard-coat or the low-refractive-index layer of anti-reflective coatings, including those taught by Tsukada et al. In light of this, it has been found that the selection of a known material based on its suitability for its intended use supports a *prima facie* obviousness determination – *see MPEP 2144.07*.

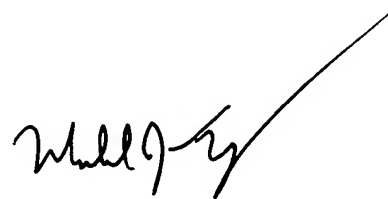
Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to use the stable composition of You et al. in the multi-layer anti-reflective coatings of Tsukada et al. because the composition of You et al. would have been recognized in the art as a suitable coating material for anti-reflective films, wherein the stable pot-life of this composition results in a hardened film having a consistent molecular weight distribution in the range of 500-20,000.

Communication

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Michael J. Feely whose telephone number is 571-272-1086. The examiner can normally be reached on M-F 8:30 to 5:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Randy Gulakowski can be reached on 571-272-1302. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

A handwritten signature in black ink, appearing to read 'Michael J. Feely', with a long diagonal stroke extending upwards and to the right.

Michael J. Feely
Primary Examiner
Art Unit 1712

March 21, 2005